REMARKS

In the Office Action dated October 19, 2004, claims 1-67 were examined with the result that all claims were rejected. In response, Applicant submits the following comments. In view of these comments, reconsideration of this application is requested.

In the Office Action, claims 1-67 were rejected under the Doctrine of Obviousness Type Double Patenting as being unpatentable over claims 17-29 of DeLuca et al US 5,843,928. The Examiner indicated that although the conflicting claims are not identical, they are not patentably distinct from each other. Applicant, however, respectfully disagrees for the following reasons.

It is important to note that claims 17-29 of the '928 patent are directed toward a method of treating metabolic bone disease "where it is desired to maintain or increase bone mass." In contrast, the present claims, especially independent claims 1 and 26, are directed toward a method for prophylaxis of a disease characterized "by a need to increase the strength of a bone." The difference, although subtle, relates to maintaining or increasing bone mass (the '928 patent) versus increasing the strength of a bone (the instant claims). However, increasing bone mass and/or treatment of metabolic bone diseases is quite different from increasing the strength of a bone. Two bones having the same mass will not necessarily have the same strength due to the infrastructure of the bone itself. In other words, bone mass or bone formation can be increased without necessarily increasing the strength of a bone, due to the type of bone architecture being formed. In support of this, Applicant encloses a copy of an article by Ott et al entitled "Calcitriol Treatment Is Not Effective In Postmenopausal Osteoporosis" from Annals of Internal Medicine, Volume 110, No. 4, 1989, pages 267-274.

The article presents the results of a study in which calcitriol (1α,25-dihydroxyvitamin D_3) is administered to a number of postmenopausal women with vertebral compression fractures to determine the possible effects of calcitriol in postmenopausal osteoporosis. It is clear from the passage at the bottom of page 271 (left column) that a bone with discontinuous architecture is more likely to fracture than a bone

with similar mass but intact structure. Therefore, in order to increase bone strength, it is not only increasing bone mass which is important, but the type of bone formed that is also critical.

The present invention is concerned with the use of 2MD in a method for prophylaxis of a disease characterized by a need to increase bone strength. In order to demonstrate that certain forms of vitamin D compounds do not work to improve the strength of bone, the present inventors carried out some comparisons, reported at Tables 1 and 2 on pages 17 and 18 of the application as originally filed. It will be seen from the data that 2MD (the compound of the present invention) is unique in improving fracture strength, and shows results that are significantly better than the OVX control. In contrast, calcitriol (1α,25-dihydroxyvitamin D_3) showed no significant improvement in fracture strength of femur or vertebra. It is therefore unexpected that the 2MD compound is effective in increasing the strength of a bone, particularly when it is clear that other vitamin D derivatives do not have this affect. Therefore, the claims are believed to be patentable over those in the '928 patent, and Applicant respectfully requests the Examiner withdraw the obviousness type double patenting rejection.

In the Office Action, claims 1-67 were rejected under 35 USC §102(e) as being anticipated by DeLuca et al U.S. 5,843,928. The Examiner indicated that the present claims are essentially directed toward the same indication as the prior art '928 patent, and further indicates that the treatment is intended for the same population.

However, Applicant first directs the Examiner to the comments made previously herein with respect to the obviousness type double patenting rejection. There is clearly a difference between increasing bone strength and simply building bone mass, per se. Thus, Applicant believes the claims are both novel and inventive over the '928 patent.

In addition, it is important for the Examiner to note that not all metabolic bone disease is treated by attempting to increase bone mass and/or increase bone strength. For example, Paget's disease (which is a metabolic bone disease) is one where extreme bone pain is manifested due to rapid bone turnover. Thus, the aim in treating Paget's disease is

to reduce pain by reducing bone turnover activity, and current treatments include administering calcitonin and/or bisphosphonates. The goal is to reduce bone turnover and thus reduce pain, and not to build bone mass and/or increase bone strength In other diseases, such as osteoporosis, and depending upon the condition of a patient, the goal may be to regulate bone turnover in order to build bone mass, and not necessarily to increase bone strength. Thus, one cannot simply equate building bone mass and increasing bone strength.

It is also important to note that the FDA has different guidelines for "treating" a disease versus "preventing" a disease. According to the FDA, these are separate indications, and one cannot allege prevention of a disease if a drug merely treats the disease. Thus, Applicant believes one cannot state that simply because a drug treats a disease, it "inherently" will also prevent that disease. Accordingly, Applicant requests the Examiner withdraw the §102(e) rejection.

In the Office Action, claims 1-67 were rejected under 35 USC §112, first paragraph, as being nonenabling. Applicant, however, respectfully disagrees for the following reasons.

The data in Tables 1 and 2 clearly show that animals with normal bone mass were given 2MD and these animals had not only increased bone mass, but also increased bone strength. The animals did not have a metabolic bone disease, but instead were normal, healthy animals. Thus, the data in Tables 1 and 2 clearly show that 2MD is effective in increasing bone mass and bone strength of normal female rats. Applicant refers the Examiner specifically to the "conclusion" section of the application beginning at paragraph 0067 on page 20 of the application as filed. Given that the animals had normal bone mass, and were not diseased, Applicant believes it has demonstrated that 2MD could be used as a prophylaxis or preventive measure against bone fractures. Again, Applicant believes the Examiner should withdraw the §112, first paragraph rejection.

In the Office Action, claims 1-67 were rejected under 35 USC §103(a) as being unpatentable over DeLuca et al US 5,843,928. It is the Examiner's allegation that the

'928 reference directed toward maintaining or increasing bone mass renders the instant claims directed toward increasing bone strength obvious. However, Applicant refers the Examiner to the comments previously made herein with respect to the double patenting rejection and the §102 rejection. These comments apply equally to refute the Examiner's §103 rejection. Again, it is important to note that increasing the strength of a bone is different than just building bone mass per se. Accordingly, Applicant requests the Examiner withdraw the §103 rejection.

An effort has been made to place this application in condition for allowance and such action is earnestly requested.

Respectfully submitted,

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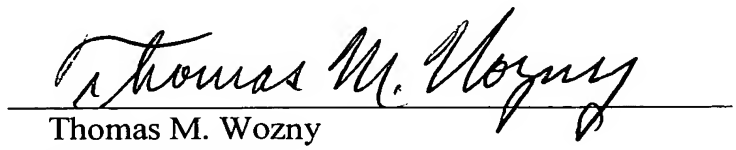
By 

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